EX 24 PAGE 33 :

$$z^6=-1=e^{i\pi}\Rightarrow z=e^{i\frac{\pi+2k\pi}{6}}\quad k\in\{0;1;2;3;4;5\}$$

$$S_{\mathbb{C}}=\left\{e^{i\frac{\pi}{6}};e^{i\frac{\pi}{2}};e^{i\frac{5\pi}{6}};e^{i\frac{7\pi}{6}};e^{i\frac{3\pi}{2}};e^{i\frac{11\pi}{6}};\right\}$$

$$x^6+1=\underbrace{\left(x-e^{i\frac{\pi}{6}}\right)\left(x-e^{i\frac{11\pi}{6}}\right)}_{\left(x^2-x(e^{i\frac{\pi}{6}}+e^{i\frac{11\pi}{6}})+1\right)}.\underbrace{\left(x-e^{i\frac{\pi}{2}}\right)\left(x-e^{i\frac{3\pi}{2}}\right)}_{\left(x^2-x(e^{i\frac{\pi}{2}}+e^{i\frac{3\pi}{2}})+1\right)}.\underbrace{\left(x-e^{i\frac{5\pi}{6}}\right)\left(x-e^{i\frac{7\pi}{6}}\right)}_{\left(x^2-x(e^{i\frac{5\pi}{6}}+e^{i\frac{7\pi}{6}})+1\right)}$$

$$=\left(x^2-2\cos(\frac{\pi}{6})x+1\right)\left(x^2-2\cos(\frac{\pi}{2})x+1\right)\left(x^2-2\cos(\frac{5\pi}{6})x+1\right)$$

$$=\left(x^2-\sqrt{3}x+1\right)\left(x^2+1\right)\left(x^2+\sqrt{3}x+1\right)$$

Qarray.tn -Aqra Blech- Qarray.tn